Proposal for the
West Shore Wildland Urban Interface
Hazardous Fuels Reduction and Forest Health Project

USDA Forest Service
Lake Tahoe Basin Management Unit
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BACKGROUND

The project area is located on the west shore of Lake Tahoe, extending from Emerald Bay in the south, to Burton Creek State Park in the north, and is entirely within the State of California on National Forest System lands (NFS) in Placer and El Dorado counties (Project Overview Map, pg. 2).

The West Shore Wildland Urban Interface (WUI) Project will complete the LTBMU's commitment for initial treatment of Forest Service lands within the WUI as presented in the Lake Tahoe Basin Multi-Jurisdictional Fuel Reduction and Wildfire Prevention Strategy. All the identified treatment stands are located entirely within the WUI Defense and Threat Zones. The Defense Zone extends approximately 0.25 mile from capital improvements and the Threat Zone extends approximately 1.25 miles beyond the Defense Zone. Refinements have been made to the WUI boundaries, consistent with the LTBMU Forest Plan.

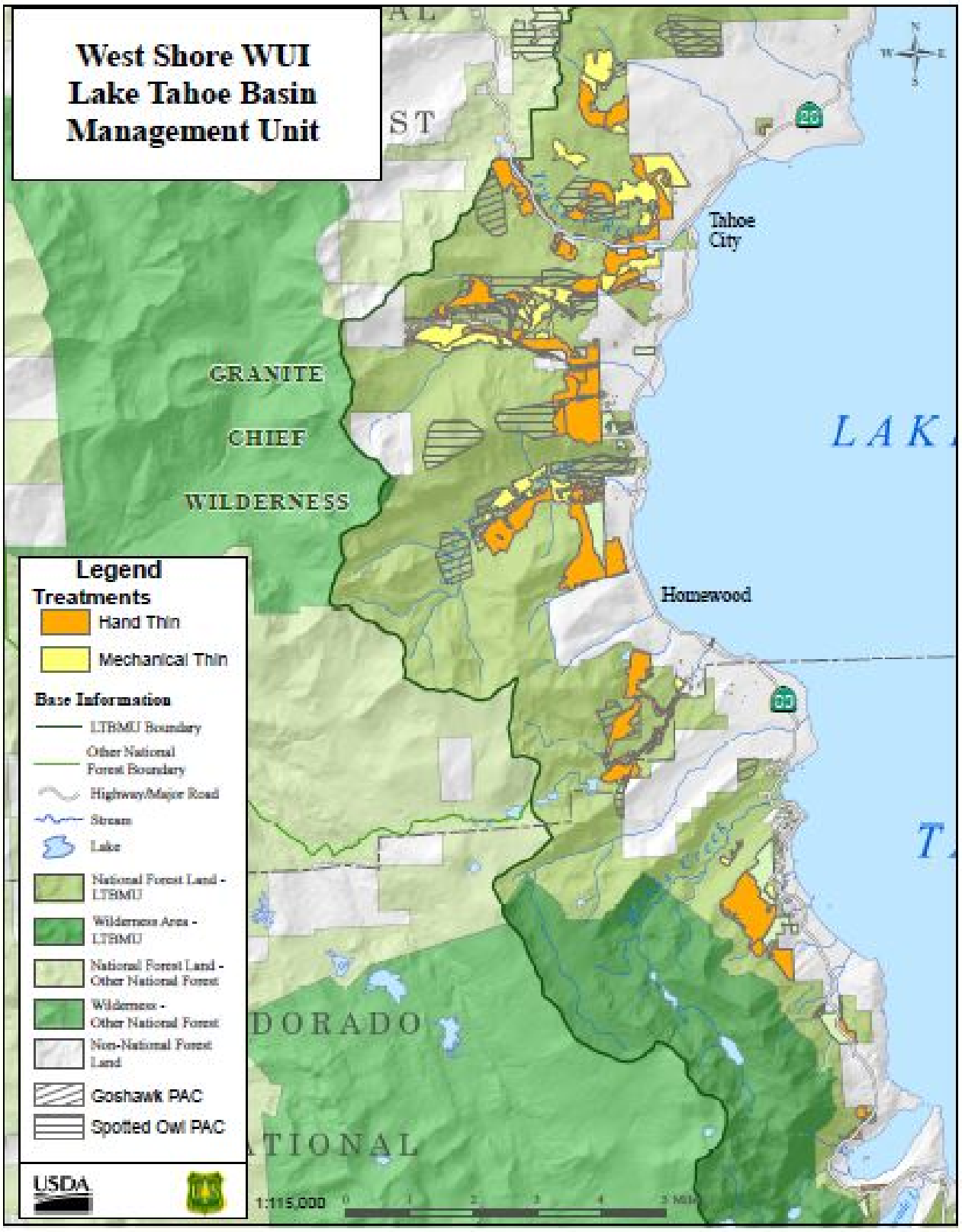

Figure 1. West Shore WUI Project Overview Map

PURPOSE AND NEED:

Forest vegetation conditions in the West Shore WUI project area have been altered by fire suppression, urban development, and past forest management - most notably, the Comstock logging era of the 1870's. Pre-settlement forest stand structure and tree species composition has shifted over the past 100 years from stands with fewer larger diameter pines and firs to stands with a greater number of smaller diameter pine and competing (shade-tolerant) fir trees, along with an increase in both live and dead surface fuel loading.

The current fuel conditions and potential fire behavior in the project area pose an increased risk of a catastrophic wildland fire. The accumulation of surface and ladder fuels, especially the growth of dense, small-diameter suppressed trees, contributes to increased potential for crown fires. A second entry is needed in some areas previously treated under the Ward and Quail projects to reduce hazardous fuels to desired conditions.

The needs for the project, focused on the Wildland Urban Interface (WUI) defense and threat zones, are to:

- Provide for defensible space adjacent to communities in the project area where fire suppression operations can be safely and effectively conducted in order to protect homes and communities from wildfires.
- Complement defensible space treatments that have been implemented by local municipal fire districts.
- Reduce the potential for a catastrophic wildland fire in the area by reducing wildland fire intensity, rate of spread, and crown fire potential.
- Lower fire intensity along primary travel corridors (i.e. state highways, county roads) to improve ingress and egress of emergency transportation systems as well as residents and visitors within the project area during a potential wildland fire.
- Move the project area toward a pre-Comstock era vegetative condition related to stand density, tree size class, and species composition that provides for healthy forest conditions to decrease the risk for widespread tree mortality during drought conditions.
- Improve forest health by thinning trees in areas where densities are high, leading to decreased potential for insect infestation and spreading of diseases.
- Reduce encroaching conifer densities and surface fuel loads within Stream Environment Zones (SEZs) and restore the dominance of riparian vegetation in SEZs not proposed for treatment under the Aspen CE.)

- Restore fire-dependent ecosystem processes and create conditions that enable the managed reintroduction of fire into fire-adapted ecosystems by shifting the fire regime conditions class[1] (FRCC) in the treated landscape from Class 2 and 3, toward Class 1 and 2.Improve and restore the dominance of riparian vegetation communities such as aspen, alder, willow, and meadow grasses and shrubs by removing encroaching conifers.

In meeting these needs, the following purposes would be achieved:

- Stands in proposed treatment areas within the Wildland Urban Interface (WUI) Defense Zones would: (1) be fairly open and dominated primarily by larger, fire tolerant trees; (2) have surface and ladder fuel conditions such that crown fire ignition is unlikely (under 90th percentile fire weather conditions after thinning); and, (3) have crown fuels open and discontinuous both horizontally and vertically, resulting in very low probability of a sustained crown fire (SNFPA ROD 2004, p. 40).
- In the WUI threat zones, under 90th percentile fire weather conditions, wildland fire behavior in treated stands would: (1) have flame lengths at the head of the fire less than four feet high; (2) have reduced hazards to firefighters by managing snag levels in locations likely to be used for control in prescribed fire and fire suppression, consistent with safe practice guidelines; and, (3) have production rates for fire line construction double from pre-treatment levels.
- In project treatment areas the landscape would shift from Fire Regime Condition Classes 2 and 3, toward 1 and 2, improving the overall resiliency of the forest to large scale disturbances.
- In the six northern goshawk protected activity centers (PACs) and four California spotted owl PACs within or partly within the WUI Defense Zone, treatment would: (1) occur where crown fire is expected based on fire behavior modeling and (2) remove only material needed to meet the fuels objectives, or at a minimum, move the area towards the objective for the WUI defense zones (e.g. treatments should be designed to maintain habitat structure and function of the PAC) (SNFPA ROD 2004, p. 60).
- Treatment in the three northern goshawk PACs and two California spotted owl PACs within or partly within the WUI Threat Zone, will (1) occur in areas where avoiding the PAC would significantly compromise the overall effectiveness of the landscape fire and fuels strategy, and (2) be designed to maintain habitat structure and function of the PAC (SNFPA ROD 2004, p. 60).
- In the Riparian Conservation Areas (RCAs) and SEZs, treatment outcomes would (1) ensure water quality meets the goals of the Clean Water Act and Safe Drinking Water Act, and (2) ensure that species composition and structural diversity of plant and animal communities in

[1] Fire Regime Condition Class, is a classification of the amount of departure from the natural fire regime, with Class 1 being low, Class 2 moderate, and Class 3 high departure, from the role fire would play across the landscape in the absence of modern human intervention.

riparian areas provide desired habitat conditions and ecological functions (SNFPA ROD 2004, pp. 42-43), and (3) enhance or maintain physical and biological characteristics associated with aquatic- and riparian-dependent species (Riparian Conservation Objective #4, SNFPA ROD 2004, p. 33)).

Current Conditions

Average basal area for the proposed treatment stands is 296 ft^2 per acre ranging from 167 to 485 ft^2 per acre. Summary stand exam plot data collected during the summer and fall of 2012 also indicate an average of 721 live trees per acre (TPA) with a range of 145 to 2433 TPA.

The current dead and down surface fuels for the proposed treatment stands range from approximately 8 to 40 tons per acre, with an average of 23.1 tons per acre.

Desired Conditions

The desired conditions for WUI defense and threat zones as defined in the LTBMU Forest Plan, as amended are highlighted below:

- Stands in defense zones are fairly open and dominated primarily by larger, fire tolerant trees.
- Surface and ladder fuel conditions are such that crown fire ignition is highly unlikely.
- The openness and discontinuity of crown fuels, both horizontally and vertically, result in very low probability of sustained crown fire.

The desired composition and structure of the forest stands in the project area would consist primarily of larger fire resistant White fir, Jeffrey pine, incense cedar, and sugar pine in the overstory of lower and mid elevations stands, with larger red fir, western white pine, and incense cedar in the mid to higher elevation overstory with whitebark pine existing in the understory. There would be limited understory stand reinitiation (i.e. little to no understory regeneration of shade tolerant conifers), and residual stand densities range from about 80 to 120 ft^2 basal area per acre. The reduced densities would result in decreased levels of insect and disease related mortality which often coincides with competition related stress. There would also be limited shade tolerant conifer encroachment within riparian zones which would enhance and be dominated by riparian species such as aspen, alder and willow.

The desired fuel conditions are surface fuel loads less than 10 tons per acre, and less than 15 tons within SEZ and wildlife areas. These conditions would cause a wildfire to burn at lower intensities and slower rates of spread compared to untreated areas, thereby contributing to more effective fire suppression capabilities and fewer acres burned at higher severities.

PROPOSED ACTION

In response to the purpose and need, the West Shore WUI Project proposes vegetation and fuels treatments to reduce stand densities to improve forest health, reduce fire hazards from existing fuels, and modify fire behavior to provide defensible space for adjoining developed private lands. Treatment options include ground based mechanical treatments wherever slope and road access allow, and hand treatments where steeper and/or rocky slopes prohibit mechanical equipment operations.

Using the Fuels Strategy as a starting point, with interdisciplinary team analysis using Geographic Information Systems (GIS) and field surveys, multiple treatment areas have been identified. The proposed action consists of:

1. Hand treatment on approximately 3,404 acres
2. Mechanized treatment on approximately 1,472 acres
3. Prescribed fire (pile burning and/or prescribed underburning) in treatment units. Underburning would be a follow-up treatment option in all units.
4. A total of 55 landings (18 existing and 37 new) within the 32 proposed mechanical treatment units.
5. A total of 3 miles of temporary road would be created by reopening existing alignments of decommissioned roads (routes with existing road prisms). Approximately 2 miles of temporary road would constructed (no existing road prisms).

The proposed action includes 100 treatment units, and approximately 100 urban lots, totaling approximately 4,876 acres (Figure 1 and Table 1). All numbers and locations in this proposal are approximate and based on GIS data. The majority (63%) of the treatments would be hand thinning. Approximately 18% of the area treated would be second entries into stands included in the Ward (2002) and Quail (2005) projects. Some of the second entries would be to reduce hazardous fuels to desired conditions, primarily in hand thin units. The Ward and Quail projects utilized a 10 inch diameter limit in hand thin units due to equipment limitations, while this project proposes a 16 inch diameter limit in hand thin units. In addition, the Ward and Quail projects did not include any treatments in Stream Environment Zones (SEZs).

Table 1. West Shore WUI treatment types.

	Mechanized	Hand Thin	Total
Initial Entry	1025	2994	4,019
Secondary Entry	447	410	857
Total	1,472	3,404	4,876

The thinning operation selected would be based on soil type and slope of treatment stands. Hand thinning would occur where slopes are generally greater than 30%, and ground-based mechanical thinning would occur primarily where slopes are less than 30%. In areas less than 30% slope, hand thinning could occur due to a high potential for soil erosion.

The following combination of vegetation and fuels treatments are proposed:

- Sawlog and biomass removal, chipping and masticating of slash and brush.

- Hand and mechanical thinning of brush and trees, both inside and outside of defined SEZs.
- Cutting, chipping, and removing infested, diseased, and dead standing and down trees and logs.
- Prescribed pile and under-burning after vegetation treatments.

The treatments are initial proposals and are subject to change after further analysis. This means that changes made in prioritizing treatments (i.e. a mechanical type treatment changed to a hand type treatment) could result in reduced impacts to soil, water, vegetation, animal, or cultural resources.

Trees within the treatments areas would be thinned from below (the removal of small size trees, working up in diameter sizes), with trees expressing signs of impacts to insects and diseases selected for removal first, as well as some codominant trees to meet the desired conditions. Hand treatment would occur on 68 stands and mechanical treatments would occur on 32 stands.

In areas where white pine blister rust has caused increased mortality, additional removal of dead trees would occur. Also, in areas where there are occurrences of dwarf mistletoe, removals would additionally target trees that are rated 4 or higher on the Hawksworth's dwarf mistletoe rating system. This could reduce stand basal areas below desired levels in areas of heavy infestation of dwarf mistletoe.

Within 300 feet of developed areas (homes and other infrastructure), brush, snags, and down logs would be treated by removal to meet the defensible space objectives (i.e., on NFS lands within the 300-foot zone, reduce wildland fire spread and intensity sufficiently for suppression forces to succeed in protecting human life and property).

Mechanical Thinning and Fuels Reduction

In mechanical units, treatment may be completed by whole tree removal, or low impact methods such as Cut-to-Length (CTL) forwarding, and cable yarding systems. Follow up treatments to reduce or redistribute residual fuel that was created by thinning, or present prior to thinning, could include mastication, chipping or grapple piling, with pile burning occurring where piles are made. Prescribed understory burning would be used where and when feasible to complete treatment objectives. Public fuelwood collection may also be utilized where accessibility to roads and treatment areas exist.

The general prescription for ground-based mechanical treatments would be to remove understory trees between 1 and 30 inches DBH to meet the desired residual stand density based upon the current stand conditions. Sugar pine, Jeffrey pine, and incense cedar would be favored for retention at mid elevations, and whitebark pine, Jeffrey pine, western white pine, and red fir favored for retention at higher elevations. To achieve the desired fuel loading conditions, existing downed logs and fuels would be reduced through removals while leaving enough to meet wildlife resource protection measures. The type of ground-based mechanical equipment used for thinning operations would depend on vegetation removal needs, operational feasibility, cost efficiency, and general ground conditions. Treated material could be removed as a combination of sawlogs, fuelwood, or biomass. Treated material not removed could be either chipped or masticated, and then spread over the treatment area with some of this material consumed during planned underburning. Un-utilized material left in landings may also be burned or removed.

Existing landings would be used where available, otherwise new landings would be constructed. New landings would be no larger than required in order to safely facilitate the handling and removal of biomass material in compliance with OSHA requirements. Landings would average less than one acre but would not be larger than two acres in order to safely facilitate the handling and removal of biomass material. Landing construction may require the removal of trees larger than 30 inches DBH. Landings utilized in treating urban lots would be contained within the lot being treated, or located in an adjacent lot limited to natural openings or roadside areas. When treatment operations have been completed, rehabilitation of the landings would be implemented to insure proper drainage and provision for sufficient ground cover to minimize potential erosion.

There are approximately 5 miles of temporary road construction required in order to facilitate mechanical treatments. Of this amount, approximately 3 miles of temporary road is on top of a relic road prism (i.e. previously decommissioned). The construction needs vary between roads, but may include installation of drainage structures to prevent surface water runoff, road widening for vehicle access, and road surface stabilization. The road widening may include removing trees and brush. Removal of trees larger than 30 inches DBH would be minimized through choice selection of road location. All temporary roads would include BMPs and other structures to minimize erosion risk, while stabilizing the surface. When operations have been completed, any temporary roads used for the project will be closed with entry barriers to prevent access, and water bars or other drainage structures installed to provide proper drainage. Other rehabilitation, including provision of sufficient ground cover, would be implemented as determined by soil scientist or hydrologist in conjunction with the contract administrator. All rehabilitation measures will be constructed to meet the Visual Quality Objectives (VQO) for the project area.

Hand Thinning and Fuels Reduction

In hand thinning treatment units hand crews would thin and pile trees and downed fuels. Follow-up fuels treatments to reduce or redistribute residual fuel that was created by thinning, or present prior to thinning, could include pile burning or chipping of fuel if close to a suitable road or ground accessible to a chipping piece of equipment. Public fuelwood collection may also be utilized in areas with accessibility to roads or on urban lots within the project area.

The general prescription for hand thinning treatments would be to remove live trees up to 20 inches DBH based on a desired residual tree per acre (TPA) and spacing between these residual trees. Sugar pine, Jeffrey pine, and incense cedar would be favored for retention at mid elevations, and whitebark pine, Jeffrey pine, western white pine, and larger red fir favored for retention at higher elevations. Hand thinned stand treatments include hand cutting of trees with hand piling or scattering of material for burning, or prescribed underburning. Dead trees up to 20 inches DBH may also be felled and piled for burning. An alternative to pile burning may be the use of mechanical equipment (masticator or chipper) in areas that meet slope requirements and are accessible to roads.

SEZ Treatments

The LTBMU SEZ risk rating system as amended or other current research would be applied to determine the suitability for mechanical treatments and the level of monitoring needed both during and post treatment. Resource protection measures would be applied to these areas, and are described below.

Prescribed Burning

In addition to slash disposal, prescribed fire would help accomplish the following:

- Reduce surface ladder fuels
- Achieve desired stand density objectives with mortality by burning in some hand thin units where thinning may not reduce density adequately (e.g. too many trees that are too large for hand piling, or current stand density would result in too many piles).
- Increase snags for wildlife habitat

Fuel treatments using prescribed fire may occur as the primary treatment, or within 2 to 5 years following hand or mechanical treatment. Prescribed fire is analyzed to occur within all treatment areas.

Resource Protection Measures

Resource protection measures are intended to avoid, eliminate or reduce unintended and undesirable effects of the proposed activities. They are also included in the proposed action to ensure that the project is consistent with the Forest Plan, policy direction, and other laws and regulations. The following headings display the resource protection measures categorized by resource area and in some cases include the unit location for where the measure is applied.

Air Quality

1. Prescribed burning activities would comply with air quality standards and restrictions
2. A burn plan would be prepared prior to implementation. This burn plan includes a Smoke Management Plan which is the basis for obtaining a burn permit from Place and El Dorado Air Quality Management Districts. The plan includes measures for smoke mitigation and public notification of prescribed fire activities.

Pest Management

3. Stumps created by the cutting of live fir and pine trees 14 inches diameter and greater would be treated with an EPA registered borate compound.

Wildlife

4. TBD A limited operating period (LOP) of March 1 through August 15 would be followed during which no vegetation treatments would take place within ¼ mile of a California spotted owl activity center, unless surveys confirm that California spotted owls are not nesting. Prior to implementing activities within or adjacent to a California spotted owl PAC and the location of the nest site or activity center is uncertain, conduct surveys to establish or confirm the location of the nest site or activity center.

5. A LOP of February 15 through September 15 would be followed during which no management activities would take place within ¼ mile of a goshawk nest site or the TRPA disturbance zone, unless surveys confirm goshawks are not nesting. If the nest stand within a protected activity center (PAC) is unknown, either apply the LOP to a ¼ mile area surrounding the PAC, or survey to determine the nest stand location.
6. No habitat manipulation within ¼ mile of osprey nest trees, unless surveys confirm non-nesting; March 1-August 15.
7. No habitat manipulation within 300 feet of roost sites for Townshend's big-eared bat, pallid bat, and fringed myotis, unless surveys confirm that bats are not present; May 1-August 31.
8. LOPs may be added or subtracted dependent upon current data. A full list of LTBMU terrestrial wildlife LOPs is available in the project BA/BE.
9. Validate detections of wolverine with a forest carnivore specialist. When verified sightings occur, conduct an analysis to determine if activities within 5 miles of the detection have a potential to affect the species. Evaluate activities for a 2-year period for detections not associated with a den site.
10. Retain all known osprey nest trees. Within ¼ mile buffer around nest trees, retain an average of 3 trees per acre that are larger in diameter and taller than the dominant tree canopy, where they exist, with an emphasis on dead topped trees with robust open branch structures.
11. Any sightings of Northern goshawk, California spotted owl, Pacific marten, North American wolverine or a large congregation of bats or of nests or dens of these species would be reported to the project biologist. Additionally, any nest structure that could belong to an osprey, peregrine falcon, golden eagle or bald eagle, not previously identified on the stand cards would be reported. Reports of any of these species or their nests/dens should occur within 24 hours of their detection. The project biologist would determine if an LOP or other actions are necessary. Refer to the Special Status Species Pocket Guide for identification details.
12. Retain some mid- and large diameter live trees that are currently in decline, have substantial wood defect, or that have desirable characteristics (teakettle branches, large diameter broken top, large cavities in the bole) to serve as future replacement snags and to provide nesting structure. Retention of these trees would be consistent with fuels reduction and forest health objectives, including defensible space needs.
13. A minimum of four of the largest snags per acre would be maintained across all activity areas with the exception of goshawk and owl PACs. The goal for goshawk and owl PACs is to have an average of 5-8 snags per acre (20-inch dbh or larger) of variable decay classes. Refer to treatment prescriptions section for further detail. Where feasible, snags would be clumped and distributed irregularly across the treatment units.
14. Where they exist, retain an average of three larger diameter logs per acre (>15 inches diameter) more than 300 feet from private property.

Aquatic Wildlife Habitat

15. Leave existing downed trees and CWD that are in perennial or intermittent stream channels in place unless removal is needed to maintain channel stability, as determined by a Forest Service watershed specialist or fish biologist.
16. To avoid removing or altering bank stabilizing vegetation, trees may be marked for removal (live or dead) within 5 ft. of the bank edge of perennial or intermittent streams and lakes, as approved by the fisheries biologist and watershed specialist, only where fuel loads or stand densities exceed desired conditions and where CWD is at or above desired levels or where trees are a hazard to safe operations.
17. Use directional falling to keep felled trees out of intermittent and perennial streams unless the channel reach is identified as deficient in coarse woody debris or such trees are needed for stream shade.
18. Maintain shaded bank conditions on trout streams by retaining at least 50% of the stream bank site potential for herbaceous and shrub cover and at least 25% of the site potential for tree cover. Where natural tree cover is less than 20%, 80% of the potential would be retained. Thirty-five to 70% of the stream would be shaded from 11:00 AM to 4:00 PM. The purpose of this standard is to maintain levels of stream shade to ensure that there is no measurable increase in daily mean water temperatures where fuel reduction occurs.
19. Use screening devices for water drafting pumps. (Fire suppression activities are exempt during initial attack.) Use pumps with low entry velocity to minimize removal of aquatic species, including juvenile fish, amphibian egg masses and tadpoles, from aquatic habitats. This applies project wide.
20. If water drafting occurs, water levels would be maintained to support aquatic dependent species and associated habitat, and to provide adequate outflow for downstream water uses. Contract Administrator and/or watershed specialist will periodically check to ensure appropriate drafting procedures are being followed. If visual monitoring indicates water level and outflows are not adequate, the Contract Administrator would consult with a hydrologist and/or aquatic biologist and determine when to cease drafting water. This applies project wide.

Sensitive Plants and Noxious Weeds

21. Prior to implementation, resurvey areas of suitable habitat for TEPCS botanical species, if surveys have not been conducted in the last five years.
22. Moonworts (Botrychium spp.): Known occurrences and a 100-ft buffer will be avoided completely during project activities, even if plants are not visible in year of implementation. These areas will be flagged prior to implementation and identified on project maps.
23. Goward's water fan (Peltigera gowardii): Known occurrences and a 300-ft upstream buffer will be completely avoided during project activities. These areas will be flagged prior to implementation and identified on project maps. Occurrences will be monitored at least one year pre- and post-project implementation.

24. If additional occurrences of TEPCS botanical species are discovered prior to or during project implementation, they will be protected as directed above. If occurrences of other TEPCS botanical species (except whitebark pine) or LTBMU watch list species are discovered prior to or during project implementation, they will be flagged and avoided.
25. All off-road equipment used on this project will be washed before moving into the project area to ensure that the equipment is free of soil, seeds, vegetative material, or other debris that could contain or hold seeds of noxious weeds. "Off-road equipment" includes all logging and construction equipment and such brushing equipment as brush hogs, masticators, and chippers; it also includes any log trucks, chip vans, service vehicles, water trucks, pickup trucks, and similar vehicles that are used off-road. When working in known weed-infested areas equipment will be cleaned before moving to other National Forest System lands which do not contain noxious weeds, including other units within the project boundaries.
26. Inventory—As part of site-specific planning, project areas and adjacent areas (particularly access roads) will be inventoried for invasive plants.
27. Early Detection—Any additional infestations discovered prior to or during project implementation should be reported to the Forest Botanist or their designated appointee for prioritization and assessment for treatment.
28. Post Project Monitoring–After the project is completed, notify the Forest Botanist, so that the project area can be monitored for invasive plants subsequent to project implementation (as funding allows).
29. Project-related disturbance—Minimize the amount of ground and vegetation disturbance in staging and construction areas. Where feasible, reestablish vegetation on disturbed bare ground to reduce invasive species establishment; revegetation is especially important in staging areas.

Hydrology/Water Quality/Soils Resource Protection Measures and Best Management Practices

BMPs are practices that have been developed to protect soil and water resources, as described in the National Core BMP Technical Guide and the Region 5 USFS Water Quality Management Handbook. These practices and procedures provide the structure for water quality management for US Forest Service and the Pacific Southwest Region (Region 5). The BMPs comply with Section 208 and 319 of the Clean Water Act. The majority of project specific RPM's described below are cross referenced to the Regional Handbook BMP to which it applies.

Normal operating period is generally considered to be from May 1 through October 15 each year. However, operable conditions may be present outside of that time period and inoperable conditions may be present within that period. RPMs may apply to one or more of the following conditions: dry soils, wet soils, frozen or snow-covered soils. (Note: the normal operating period headings may include RPMs that apply in wet conditions).

All Project Phases

30. Watershed or transportation specialist will review project Best Management Practices (BMPs) prior to a large storm event (1 inch or greater) that may exceed BMP capacity and will notify the contract administrator if additional BMP's are recommended to disconnect runoff from surface water features (LTBMU Practice).

31. To minimize compaction, gullying, and rutting, ground based operations would be conducted only when soils are operable at the 4-8 inch depth. This determination would be made by a LTBMU watershed specialist or contract administrator, using the Soil Moisture Matrix as a guideline. Performance measures for rutting and sediment delivery described in the below sections under Watershed Resources and Transportation will still be met (BMP# 1.5, & 1.13).
32. Flag and avoid equipment use in and adjacent to special aquatic features (springs, seeps, fens, marshes); use hand treatments in these areas (BMP# 1.8).

Fuels/Vegetation treatments in uplands (during normal operating period)

33. Use hand treatments, end-lining, cable yarding systems, or equipment reach to reduce hazardous fuels on slopes greater than 30% (BMP# 1.11).
34. Where end-lining or cable yarding occurs on slopes above 10% and the contract administrator determines that there is potential for sediment delivery, berms from ruts created by end-lining would be raked in (BMP# 1.11).
35. Use directional falling to keep felled trees out of stream channels (BMP# 1.19).
36. Design underburning prescriptions to avoid adverse effects on soil and water resources by planning prescribed fire to ensure that fire intensity and duration do not result in severely burned soils (BMP# 6.3).
37. Limit depth of masticated or chipped slash to 6 inches. Use grapple or hand piling or other methods to dispose of excess slash. Prohibit masticated or chipped material in the SEZ, unless necessary for erosion control (BMP# 6.3).
38. For Whole Tree (WT) operations, the following table would be used to determine equipment exclusion buffers for perennial channels, lakes and ponds:

Slope	Soil Cover	
	Less than 75%	Greater than 75%
Less than 20%	75 feet	50 feet
Greater than 20%	100 feet	75 feet

    a) A minimum 25 ft. buffer would still apply in WT treatments units for intermittent channels.
    b) A minimum 10 ft. buffer from the top of steep slopes (>30%) that are connected to an SEZ would also apply for WT equipment exclusion (BMP# 1.19 & 1.8).

Fuels/Vegetation treatments in SEZs (during and outside normal operating period)

39. Temporary crossings on ephemeral drainages would be constructed and removed when the channels are dry. If channel is not dry at the time needed for removal (e.g. end season winterization), implement dewatering BMPs prior to crossing removal (BMP# 1.9 & 2.8).
40. Temporary crossings on intermittent drainages would be constructed and removed when the channels are not flowing and installed such that water flow and fish passage are not

obstructed. If channel is not dry at the time needed for removal (e.g. end season winterization), implement dewatering BMPs prior to crossing removal (BMP# 1.19 & 2.8).

41. Temporary crossings on both ephemeral and intermittent drainages would be designed (e.g. pipe size) to accommodate a 1" or greater precipitation event and would be removed before the winter season begins (BMP# 1.19 & 2.8).
42. Design underburning prescriptions such that flame heights would not exceed two feet within 50 feet of stream courses or on wetlands unless higher intensities are required to achieve specific objectives (BMP# 6.2 & 6.3).
43. Where it is necessary to cross an SEZ area with inoperable soil moisture conditions, equipment would operate over a slash mat, or other protective material to minimize soil compaction. If slash is used, it would be removed when operations in the area are concluded. The Contract Administrator will determine the crossing location and method (BMP# 1.22).
44. Prohibit equipment operations in ephemeral channels, except at crossings. Ephemeral crossings would be avoided where feasible, and where necessary, would be limited to 1 crossing every 800 feet of channel, as determined by the contract administrator (BMP# 1.19).
45. The contract administrator would consult with LTBMU watershed specialist to determine additional needed buffer widths, based on proximity to perennial channels, slope steepness (greater than 20 percent), and amount of existing ground cover (less than 30 percent) (BMP# 1.8).
46. Limit mechanical equipment operations in SEZs to CTL operations or operations using equipment that has low ground pressure like rubber-tired equipment, equipment that operates on a bed of slash, or other innovative technologies that reduce impacts to soils. Use the SEZ risk rating system to determine operability in part or all of the SEZ (BMP# 1.18 & 1.19).
47. For CTL operations, use a minimum 25 foot equipment exclusion buffer adjacent to perennial and intermittent streams, lakes and ponds when the SEZ rating system and stream channel condition surveys determines appropriate. For stream reaches where degraded channel conditions have been documented, a minimum 50 foot equipment exclusion buffer will be used (BMP# 1.8).
48. Ground based equipment in WT treatment stands would not operate in SEZs. To achieve desired fuel loading in SEZs within WT units, trees may be end-lined out of the SEZ after consultation with a Watershed Specialist (BMP# 1.19).
49. Where implementation monitoring finds potential for sediment delivery, contractor would rake in the berms from ruts created by end-lining or cable yarding (LTBMU Practice).
50. Prohibit tree removal methods that disturb the ground surface within 25 ft of a perennial or intermittent stream channel or other water body (e.g. lakes, ponds) (BMP# 1.19).

Hand piling and pile burning in SEZs

51. Prohibit piling of slash within 50 feet of perennial or intermittent streams, and lakes. Slash would not be piled in springs and seeps (BMP# 6.3).

52. Permit piling and burning up to 10 feet from the edge of ephemeral channels (BMP# 6.3).
53. Where it is safe to do so, and desired fire intensity can be maintained, allow fire to creep between piles and into these SEZ buffers, maintaining a burn intensity that would protect soil and water resources (BMP# 6.2).
54. Up to 30% of the SEZ may be covered in piles, but no more than 20 percent of any SEZ acre may be burned in a given year (based on an average pile diameter of 12 feet and an average pile spacing of 10 feet) (LTBMU Practice).
55. After initial ignition of piles, but while still burning, allow each pile to be re-piled once (i.e., place unburned pieces back into the burning pile). Additional re-piling will be allowed if necessary to achieve 80 percent consumption of the piled material, except for piles adjacent or in aspen SEZ areas (LTBMU Practice).
56. Hot piling of burn piles is prohibited within SEZs (i.e. don't feed one pile with the material from other piles or ground material) (LTBMU Practice).

Fuels/Vegetation treatments in uplands (outside of normal operating period or wet conditions)

57. When working outside of the normal operating period, conditions must be adequate to prevent erosion, sediment delivery to water bodies, and soil compaction that would impact soil productivity or soil hydrologic function. Equipment operations would take place on portions of the treatment unit where adequate snow or frozen ground conditions are present while considering the above desired outcome. The following criteria will be applied in determining equipment operations:
    a) Frozen soil operations are permitted where operated vehicles, tractors and equipment can travel without sinking into soil or landing surfaces to a depth of more than 2 inches for a distance of more than 25 feet. Temperatures must also remain low enough to preclude thawing of the soil surface.
    b) For over-snow operations, maintain approximately 12 inches of compacted snow/ice on undisturbed ground, and 6 inches of compacted snow/ice on existing disturbed surfaces (BMP# 1.13 & 5.6).
58. If operable soil moisture conditions, as determined by a Forest Service watershed specialist, are present beneath a lesser snow depth (i.e., soils are dry and there is less than 6 inches of snow), operations may continue until soil moisture conditions become inoperable. Monitor conditions closely and stop operations when surface soil (2-4") disturbance is greater than what would be expected during normal season operations (BMP# 5.6).
59. For over-the-snow and frozen soil operations in SEZs, exclude ground based equipment from the 25 foot buffer around perennial and intermittent channels (BMP# 1.19).
60. When adequate snow or frozen soil conditions are not present, temporary crossings on intermittent or ephemeral channels may be approved on a case by case basis through agreement between the Contract Administrator and a watershed specialist. These crossings shall not result in bank damage, water quality impairment, or obstructed flows (BMP# 1.19).

Landings

61. Locate landings and refueling areas outside Riparian Conservation Areas (RCAs) where operationally feasible. Prohibit fuel storage in RCAs. Procedures and spill prevention control measures for hazardous materials of any amount are included in project contract clauses. Prohibit fuel storage, and refueling in SEZs (BMP# 2.11 & 7.4).
62. Proper drainage from landings will be provided during use; ditching, sloping, and water bars or other BMPs may be used where needed as recommended by watershed specialist to disconnect runoff from surface water features (BMP# 1.16).
63. Restore landings after operations are complete using the following methods, as determined by the LTBMU Watershed Specialist:
    a) Providing ground cover, such as slash, wood chips or masticated material.
    b) Ditching, sloping, and water bars may be used where needed as recommended by watershed specialist to disconnect runoff from surface water features.
    c) Landings will be ripped to approximately a 12-inch depth after ground cover has been spread. Ripping is not permitted in known infestations of noxious weeds, and may not be possible in rocky soils; this determination may be made by the Contract Administrator (BMP# 1.15 & 1.16).

Transportation and Access

Roads (during all phases)

64. All native surface Forest Service roads that intersect with Forest Service paved or chip sealed roads would be stabilized through the use of aggregate base material or wood chips to minimize tracking soils onto the pavement. Soil type, grade, and alignment are factors that would determine the extent of this stabilization.
65. Obtain encroachment permits to access city or county roads from NFS lands. Consult with city or county engineers to determine any needed measures to minimize tracking of debris and soil onto pavement and ensure clean-up when operations are complete.
66. If a native surface road becomes rutted, the road would be closed. If it is determined that stabilization of the road way can be accomplished by spot-rocking or other mitigation of rutted areas, road use may continue. Rutting is defined as two-inch deep depressions greater than 25 ft. in length.
67. During winter operations, paved surfaced roads may be plowed, including turnouts, if the action will not cause damage to the road surface and associated drainage structures.
68. On native surface roads, maintain adequate snow or frozen ground to prevent rutting. Ensure that plowing does not damage drainage structures or road surface.
69. Road alignments within the contract area that require snow removal would be visibly marked on both sides along the entire alignment to facilitate plowing. Excess snow removed during plowing would not be placed into drainages or riparian areas.

70. Before over-the-snow operations begin, mark existing culvert locations. During and after operations, ensure that all culverts and ditches are open and functional.
71. When roads are plowed, snow berms must be breached to allow drainage during snowmelt. Space outlets so as not to concentrate road surface flows (usually spaced at a minimum of every 300 feet).
72. On native surface roads, retain a minimum of 6 inches of compacted snow on 85% or more of the road surface after plowing to facilitate freezing. During road use, a minimum of 6 inches of compacted snow must be present on 85% or more of the road surface, unless the road surface is frozen adequately to prevent rutting. Ensure that plowing does not damage drainage structures or road surface.

Temporary Roads/Crossings (during all phases)

73. Temporary roads would be out-sloped to ensure that effective drainage is maintained. BMPs would be installed as recommended by watershed or transportation specialist to ensure that temporary roads are hydrologically disconnected from intermittent and perennial stream channels. These BMPs could include lead-off ditches, water bars, rolling dips, etc.
74. At the conclusion of use, the road would be returned to the use designated in the applicable Road Management Objective (RMO). Designated Forest Service trails would be returned to their previous width.
75. After mechanical operations are complete, and where feasible based on soil type, temporary roads would be restored by using the following methods:
    a) Providing ground cover such as slash, wood chips, or masticated material (spread 2 to 4 inches in depth).
    b) Removing all temporary crossings and installing drainage structures (such as water bars, dips, and leadoff ditches) as appropriate to prevent water accumulation on the decommissioned road surfaces as per FSH 2409.15.
    c) Installing natural barriers such as large logs and rocks where necessary at road entrance points to prevent continued use of decommissioned road alignments.
    d) Ripping where the rock content of the soil allows (generally <30-40% cobbles by volume), where noxious weeds are absent, and when soils are moist or dry. The Contract Administrator would determine whether ripping is feasible.
76. Barriers would be strategically established along open areas adjacent to roads or trails (boulders, split rail fence, and barriers/signs) to discourage post-treatment establishment of user-created routes.

Cultural Resources Protection Measures

77. In general, sites would be avoided and protected during slash piling and burning. All sites within areas of proposed project actions will be flagged to facilitate avoidance or treatment measures. Existing breaches that lack integrity along long, linear sites would be identified during flagging and clearly marked to provide locations for equipment to cross these

resources. The following measures would be taken to ensure the protection of cultural resources:

a) No vegetation piling within site boundaries
b) No burning within site boundaries
c) No mechanical equipment within site boundaries except as designated (use of existing roads or trails)
d) Evaluate linear features to establish possible crossing areas
e) Protect arborglyphs during prescribed fire

Scenic and Recreation Resources and Improvements

78. For the safety of the public where treatment is implemented, a temporary Forest Closure Order could be used.
79. Minimize the extent and duration of temporary Forest Closure Orders associated with mechanical treatments. Provide signage during closures informing the public of the reasons for the closure and alternative options for recreation access during the closure.
80. Post signs and temporary closures advising when project activities are going to take place, as well as posting interpretative signs to educate the public of fuels management and forest health objectives of the project.
81. Locate mechanical treatment landings beyond foreground views (generally 100 feet) from Hwy 89 where feasible. Within the Highway 89 corridor, do not locate landings perpendicular to the highway when possible to eliminate direct views into the landings from the highway.
82. Repair and rehabilitate any incidental damage caused to recreational improvement or facilities.
83. Where feasible, within the immediate foreground up to 25 feet of the Tahoe Rim Trail, recreation improvements and facilities, classified roads and trails), remove slash and do not pile.
84. Cut stumps within a maximum height of 6 inches measured from the uphill side of the stump where practicable. Within 25 feet of the Tahoe Rim Trail, recreation improvements and facilities and classified roads and trails, cut stumps level.
85. After first meeting fuel reductions objectives, leave shrub islands of various shapes and sizes in an irregular distribution to provide a natural appearance within 200 feet of developed private lands or recreation improvements and facilities.
86. The location of temporary roads shall fit the landscape with a minimum degree of landform alteration limiting the amount of earthwork. Avoid excessive cut and fill slopes for temporary road construction.
87. Where skid trails or cable corridors are readily visible, use natural features (e.g. trees, shrubs, logs, rocks, etc.) to help block access to these areas and prevent unauthorized vehicular or trail use following project activity.
88. Inspiration Point Vista, and Cascade Falls trailhead area:

a. Parking: Avoid parking of crew vehicles within Inspiration Point Vista parking area or Cascade Falls trailhead parking area during periods when these sites are open for public use.

b. Education / Information: Work with Interpretive Services staff to provide interpretive information at Inspiration Point during tree removal, pile establishment, and pile burning.

c. Burn Caution: Exercise additional caution and controls on burning of piles to prevent scorching or mortality of leave trees.

d. Burn Timing: Limit burning of piles to October through May, to minimize the public's exposure to smoke during periods of heavy visitation.

DECISION FRAMEWORK

This project is being planned under the Lake Tahoe Basin Hazardous Fuel Reduction Projects Categorical Exclusion. This project's analysis process is based on Section 423 of the Omnibus Appropriations Act, 2009, Lake Tahoe Basin Hazardous Fuel Reduction Projects, which states:

> *(a) Hereafter, subject to subsection (b), a proposal to authorize a hazardous fuel reduction project, not to exceed 5,000 acres, including no more than 1,500 acres of mechanical thinning, on the Lake Tahoe Basin Management Unit may be categorically excluded from documentation in an environmental impact statement or an environmental assessment under the National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. 4321 et seq.) if the project:*
>
> *(1) is consistent with the Lake Tahoe Basin Multi-Jurisdictional Fuel Reduction and Wildfire Prevention Strategy published in December 2007 and any subsequent revisions to the Strategy;*
>
> *(2) is not conducted in any wilderness areas; and,*
>
> *(3) does not involve any new permanent roads.*
>
> *(b) A proposal that is categorically excluded under this section shall be subject to:*
>
> *(1) the extraordinary circumstances procedures established by the Forest Service pursuant to section 1508.4 of title 40, Code of Federal Regulations; and,*
>
> *(2) an opportunity for public input.*

The West Shore WUI Project meets all the criteria noted. The decision to be made by the responsible official is whether to implement the proposed action or take no action at this time.

Project Coordination with other Agencies

LTBMU staff would coordinate closely with the TRPA during project planning to ensure that the project is consistent with TRPA environmental thresholds. This project falls under the Memorandum of Understanding between TRPA and Forest Service (2009) regarding Fuels Reduction and Forest Health Projects. Coordination would include completing a TRPA environmental checklist and V (g) environmental threshold findings.

Project Monitoring Activities

The following is a list of monitoring activities for this project.

1. Each year, the LTBMU completes randomly selected evaluations for the National Best Management Practices Monitoring Program, as part of the Forest Service's effort to evaluate the implementation and effectiveness of BMPs used for protecting soil, water, and riparian resources associated with Forest management activities. Treatment units and roads within the West Shore WUI project would be included in the annual sampling pool for monitoring, related to mechanical vegetation and roads management activities that occurred in the previous

year. Only treatment units, road segments, and staging areas that contain or lie adjacent to a waterbody are included in the sampling pool.

2. Implementation monitoring in fuels treatment areas would include completing a checklist of the BMPs and design features in the NEPA and contract documents. Implementation monitoring would also include ensuring that SEZ flagging remains in place during all project activities.